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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,490	07/29/2003	Toru Kawatani	1575-0153P	5046

2292 7590 11/02/2004

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EXAMINER
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TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/628,490

**Applicant(s)**KAWATANI ET AL. **Examiner**

BINH Q. TRAN

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

Receipt and entry of Applicant's Preliminary Amendment dated July 29, 2003 is acknowledged.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

***Claims 1-2 are rejected under 35 U.S.C. 102 (b) as being anticipated by Fraenkle et al. (Fraenkle) (Patent Number 5,845,487).***

Regarding claim 1, Fraenkle discloses an engine control system comprising: a NOx catalyst (4) containing ammonia as a reducing agent, provided in an exhaust system of an internal combustion engine (1), and selectively reducing NOx from exhaust gases; a reducing agent supply providing the reducing agent to the exhaust system and positioned upstream of the NOx catalyst (e.g. See col. 4, lines 1-55); a NOx sensor (20) detecting an amount of NOx in exhaust gases emitted by the internal combustion engine; a fuel injection system injecting fuel to the internal combustion engine in a main injection mode performing main injection or a pilot-

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and-main injection mode performing pilot injection and main injection, the pilot injection proceeding the main injection; and a control unit activating the fuel injection system in the pilot-and-main injection mode when a NOx purifying efficiency determined on the basis of data of emitted NOx is equal to or below a preset NOx purifying efficiency (e.g. See Claim 1; col. 1, lines 47-67; col. 2, lines 1-67; col. 3, lines 1-25).

Regarding claim 2, Fraenkle discloses a catalyst temperature sensor detecting a temperature of the NOx catalyst, wherein the control unit activates the fuel injection system in the pilot-and- main injection mode when NOx purifying efficiency is equal to or below the preset purifying efficiency and when the temperature detected by the catalyst temperature sensor is below a catalyst activating temperature (e.g. See col. 4, lines 1-67; col. 5, lines 1-67).

#### ***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Hirota et al. (Patent Number 6546721), Hirota et al. (Patent Number 5884476), Kaneko et al. (Patent Number 6173571), Xu et al. (Patent Number 6427439), and Borland (Patent Number 6357226) all disclose an exhaust gas purification for use with an internal combustion engine.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

BT  
October 30, 2004



Binh Tran  
Patent Examiner  
Art Unit 3748